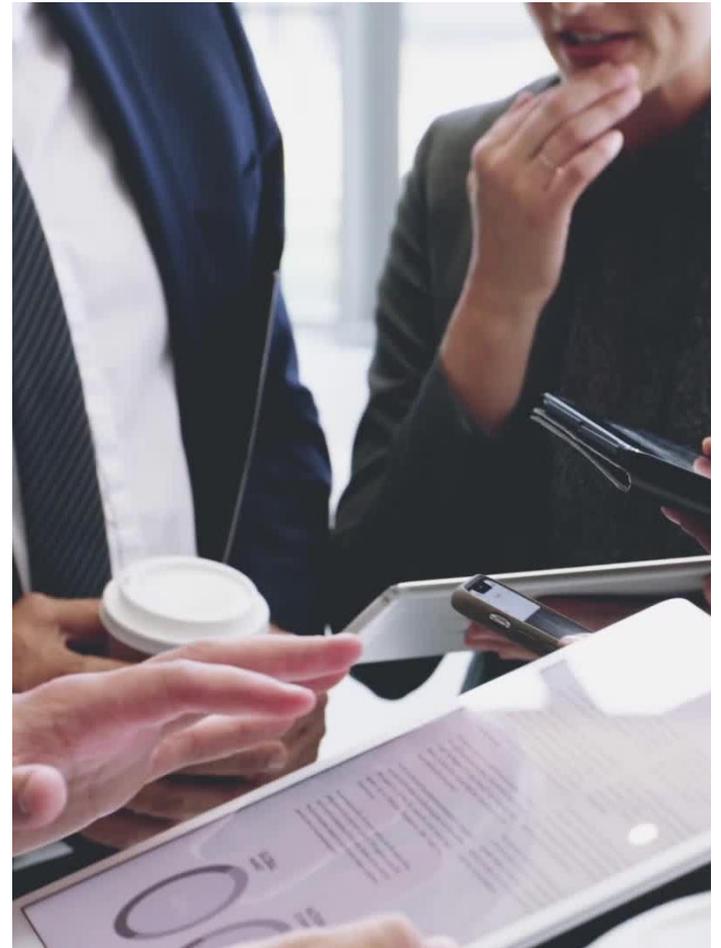


How to write a research project

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You're a reviewer.
Which proposal
would you fund?



Revolutionizing CBT with Supervised Generative Deep Learning

Depression affects ~5% of adults, and CBT is widely regarded as a relevant therapeutic approach, although response patterns remain heterogeneous, and the underlying variability determinants are not fully elucidated and may involve the interaction of psychological, behavioral, and contextual factors, for which we think that supervised generative deep learning may have predictive value.

This groundbreaking proposal will examine this novel algorithm as a key prediction system for later symptomatic change and implications for the future in this context.

The study population will be depressed patients engaged in the therapy, with information collected also after the treatment, matching the clinical workflow and participant availability, and we will adapt the measurements as necessary based on operational considerations and undergo a complex analysis to match generative deep learning to the outcome of a large sample of patients to prove the novel hypothesis.

The recruitment is feasible based on our routine clinical activity, although participation rates may vary depending on several contextual factors that are not fully controllable, the projected duration is considered adequate, and the team includes mental health professionals with a long interest in supervised generative deep learning.

No major risks are foreseen and in the unlikely case that any issues appear, we will follow adequate strategies to eliminate them completely, though, as noted, this would be unlikely.

Budget considerations include a global cost for several personnel to be decided and we do not anticipate further costs, though we consider the flexibility for additional requirements should they arise.

In summary, this innovative project is intended to contribute to the ongoing use of generative deep learning and mental health, and the extent and applicability of its impact will depend on the resulting findings and how they are interpreted, but it will surely improve CBT clinical practice.

Early Changes in Behavioral Activation as a Predictor of CBT Response in Depression

Background: Depression affects ~5% of adults. CBT is an effective treatment, yet treatment response varies widely. Preliminary findings suggest early increases in behavioral activation may explain this variability, but evidence remains inconsistent and primarily cross-sectional. No study has prospectively evaluated this prediction in a real-world clinical cohort.

Objective: Test whether early changes in behavioral activation in depressed individuals starting CBT predict treatment response at Week 8.

Methods: We will recruit 80 drug-naïve adults with DSM/ICD-diagnosed major depression starting CBT and independently assess behavioral activation (BADS) and depressive symptoms (HDRS) at Weeks 0, 2, 4, and 8. The primary outcome will be the HDRS score at Week 8. A target sample of 80 provides >80% power to detect a medium effect. Mixed-effects regression will evaluate whether early change predicts later outcome, adjusting for baseline severity, age, and gender.

Feasibility: The two-year timeline includes preparation and ethics approval (3 months), recruitment (10–14 months), analysis and reporting (3 months), and buffer time. The recruitment duration is based on an expected enrollment rate of 6–8 participants per month, derived from five years of data from the same clinical service. The team has conducted several similar CBT studies and includes psychologists, psychiatrists, and a dedicated biostatistician.

Risks and Mitigation: If recruitment falls below expectations after three months, two additional CBT psychologists—already confirmed—will be activated. Missing data will be addressed using multiple imputation.

Budget: Costs include research personnel (6 PM project manager; 6 PM biostatistician), secure GDPR-compliant data storage, and participant compensation, based on institutional cost sheets.

Impact: The project aligns with the call by addressing a clinically relevant mental health challenge. If early behavioral activation proves predictive, findings may support the development of a practical early-response indicator to guide personalized CBT in routine care.

Overall impression

- Work in pairs, trios, or individually
- Score the proposals from 0 (worst) to 10 (best)

1. Is the proposal clear?

- The study population will be depressed patients engaged in the therapy, with information collected also after the treatment, matching the clinical workflow and participant availability, and we will adapt the measurements as necessary based on operational considerations and undergo a complex analysis to match generative deep learning...
- We will recruit 80 drug-naïve adults with DSM/ICD-diagnosed major depression starting CBT and independently assess behavioral activation (BADS) and depressive symptoms (HDRS) at Weeks 0, 2, 4, and 8. The primary outcome will be the HDRS score at Week 8. A target sample of 80 provides >80% power to detect a medium effect...

2. Gap with plausible logical solution?

- Depression affects ~5% of adults, and CBT is widely regarded as a relevant therapeutic approach, although response patterns remain heterogeneous, and the underlying variability determinants are not fully elucidated and may involve the interaction of psychological, behavioral, and contextual factors, for which we think that supervised generative deep learning may have predictive value.
- **Background:** Depression affects ~5% of adults. CBT is an effective treatment, yet treatment response varies widely. Preliminary findings suggest early increases in behavioral activation may explain this variability, but evidence remains inconsistent and primarily cross-sectional. No study has prospectively evaluated this prediction in a real-world clinical cohort.

3. SMART objective?

(SMART: Specific, Measurable, Achievable, Relevant, Time-bound)

- This groundbreaking proposal will examine this novel algorithm as a key prediction system for later symptomatic change and implications for the future in this context.
- **Objective:** Test whether early changes in behavioral activation in depressed individuals starting CBT predict treatment response at Week 8.

4. Sound detailed methods?

- The study population will be depressed patients engaged in the therapy, with information collected also after the treatment, matching the clinical workflow and participant availability, and we will adapt the measurements as necessary based on operational considerations and undergo a complex analysis to match generative deep learning to the outcome of a large sample of patients to prove the novel hypothesis.
- **Methods:** We will recruit 80 drug-naïve adults with DSM/ICD-diagnosed major depression starting CBT and independently assess behavioral activation (BADS) and depressive symptoms (HDRS) at Weeks 0, 2, 4, and 8. The primary outcome will be the HDRS score at Week 8. A target sample of 80 provides >80% power to detect a medium effect. Mixed-effects regression will evaluate whether early change predicts later outcome, adjusting for baseline severity, age, and gender.

5. Adequate sample size?

- The study population will be depressed patients engaged in the therapy, with information collected also after the treatment, matching the clinical workflow and participant availability, and we will adapt the measurements as necessary based on operational considerations and undergo a complex analysis to match generative deep learning to the outcome of a large sample of patients to prove the novel hypothesis.
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6. Shows realistic feasibility?

(time for ethics approval, no optimistic recruitment, buffer time...)

- The recruitment is feasible based on our routine clinical activity, although participation rates may vary depending on several contextual factors that are not fully controllable, the projected duration is considered adequate, and the team includes mental health professionals with a long interest in supervised generative deep learning.
- **Feasibility:** The two-year timeline includes preparation and ethics approval (3 months), recruitment (10–14 months), analysis and reporting (3 months), and buffer time. The recruitment duration is based on an expected enrollment rate of 6–8 participants per month, derived from five years of data from the same clinical service. The team has conducted several similar CBT studies and includes psychologists, psychiatrists, and a dedicated biostatistician.

7. Team expertise?

- The recruitment is feasible based on our routine clinical activity, although participation rates may vary depending on several contextual factors that are not fully controllable, the projected duration is considered adequate, and the team includes mental health professionals with a long interest in supervised generative deep learning.
- **Feasibility:** The two-year timeline includes preparation and ethics approval (3 months), recruitment (10–14 months), analysis and reporting (3 months), and buffer time. The recruitment duration is based on an expected enrollment rate of 6–8 participants per month, derived from five years of data from the same clinical service. The team has conducted several similar CBT studies and includes psychologists, psychiatrists, and a dedicated biostatistician.

8. Realistic risks and mitigation strategies?

- No major risks are foreseen and in the unlikely case that any issues appear, we will follow adequate strategies to eliminate them completely, though, as noted, this would be unlikely.
- **Risks and Mitigation:** If recruitment falls below expectations after three months, two additional CBT psychologists—already confirmed—will be activated. Missing data will be addressed using multiple imputation.

9. Realistic budget linked to specific tasks?

- Budget considerations include a global cost for several personnel to be decided and we do not anticipate further costs, though we consider the flexibility for additional requirements should they arise.
- **Budget:** Costs include research personnel (6 PM project manager; 6 PM biostatistician), secure GDPR-compliant data storage, and participant compensation, based on institutional cost sheets.

10. Realistic path from findings to practice?

- In summary, this innovative project is intended to contribute to the ongoing use of generative deep learning and mental health, and the extent and applicability of its impact will depend on the resulting findings and how they are interpreted, but it will surely improve CBT clinical practice.
- **Impact:** The project aligns with the call by addressing a clinically relevant mental health challenge. If early behavioral activation proves predictive, findings may support the development of a practical early-response indicator to guide personalized CBT in routine care.

Objectives of this Session

By the end of this hour, you should be able to:

List the key components of a research proposal

Understand the differences between:

- What you see as the candidate
- What reviewers may see
- What would happen in reality if funded

Adapt your idea to:

- Specific call
- Reviewers' criteria
- Real-world constraints (time, resources, patients)

How Funding Decisions Really Happen

Only a minority of projects is funded...

... and they **might not be the best** ones.

Reviewers are:

- **busy, tired**, reading many proposals
- **guided by criteria** and scores, not intuition alone

They **love: clear, realistic, well-argued** projects

They **hate: vague, overly optimistic, unclear** documents

If a point is not clearly written where they expect it, it almost doesn't exist.

Types of Calls

Bottom-up calls (e.g. ERC)

- Topic is free or broad
- Creativity and novelty matter more
- Need a strong idea that is feasible

Top-down calls (e.g. Horizon)

- Very specific topics/priorities
- You must mirror the wording of the call
- Innovation is constrained by the predefined goals

Questions Every Proposal Must Answer



What is the problem?



What exactly will you study?



Why is it important and novel?



How will you do it?



Who will do it?



With what resources?



So what if it works?

Background & Gap

Candidate

- May write a long background, little synthesis
- Tends to assume novelty rather than prove it

Reviewer

- Skims for key references and a clear gap statement: "However, ... is unknown."
- Asks: "Does this gap really matter?"
- A sharp gap + plausible logical solution = reason to fund.

Reality

- There must be a clear, relevant gap – maybe others have already investigated the question, or it is not important

Idea & Novelty

Candidate view (often optimistic)

- “This is a brilliant idea, totally new.”
- Focus on own enthusiasm, less on evidence

Reviewer view

- “Is this one clear step beyond what we already know?”
- “Is the novelty understandable and believable?”
- Too radical / unclear = *risky, low score*

Reality

- Who knows?
- The most fundable projects are usually a reasonable, well-justified step forward

Research Question & Objectives

Candidate

- “Everyone understands what I mean.”

Reviewer

- Looks for SMART elements: Specific, Measurable, Achievable, Relevant, Time-bound
- If question is fuzzy → it will look weak

Reality

- Must be focused, answerable, realistic
- Better if 1 main question + 2–3 specific objectives
- A precise question helps methodology (design, sample size, outcomes) and feasibility (time, budget)

Methods

Candidate

- “Details are obvious; I’ll think about them later, there’s no need to detail them.”
- Underestimates sample size, dropouts, missing data

Reviewer

- If it’s not written clearly → “It’s not there.”
- Wants design appropriate to question, realistic sample size / power, sensible analyses

Reality

- Weak methods can make even a good idea bad.
- A good but simple method is better than a complex one you cannot deliver.

Feasibility: recruitment

Candidate

- “We’ll recruit 200 patients quickly.” (without evidence)
- Assumes perfect recruitment and no loss to follow-up

Reviewer

- Thinks in worst-case scenarios: slower recruitment, dropouts
- Looks for pilot data or realistic estimates, evidence that you know your setting

Reality

- Recruitment and data collection are usually slower and messier than expected.
- Conservative planning and buffer time protect both the project and your mental health.

Feasibility: Ethics & Data Management

Candidate

- “We’ll do these things later — there’s no time or space for it.”

Reviewer

- “Is the project ethically safe? Is data secure? Do they understand approvals take time?”

Reality

- Identify required approvals early (ethics committee, data access, GDPR compliance)
- Plan anonymization, secure storage (encrypted server, role-based access) and data sharing policy
- Brief ethics and data management paragraphs increases trust.

Feasibility: time

Candidate

- “We’ll just learn as we go.”
- Underestimates time for: ethics, approvals, data cleaning, analysis and writing

Reviewer

- Asks: “Can a medical student/junior really do this in the given time?”
- Looks for: realistic time plan, experienced supervision, existing infrastructure

Reality

- Over-ambitious projects fail even if funded.
- A smaller but complete project is more persuasive.

Feasibility: team

Candidate

- “My supervisor’s name is enough.”
- Often does not state roles clearly

Reviewer

- Judges feasibility by: track record of the supervisor, complementarity of the team
- Wants to see: who does what

Reality

- A strong, clearly described team reassures that even if you are junior, the project is in good hands.

Risks and mitigation strategies

Candidate

- “Everything will go as planned.”
- Rarely mentions risks

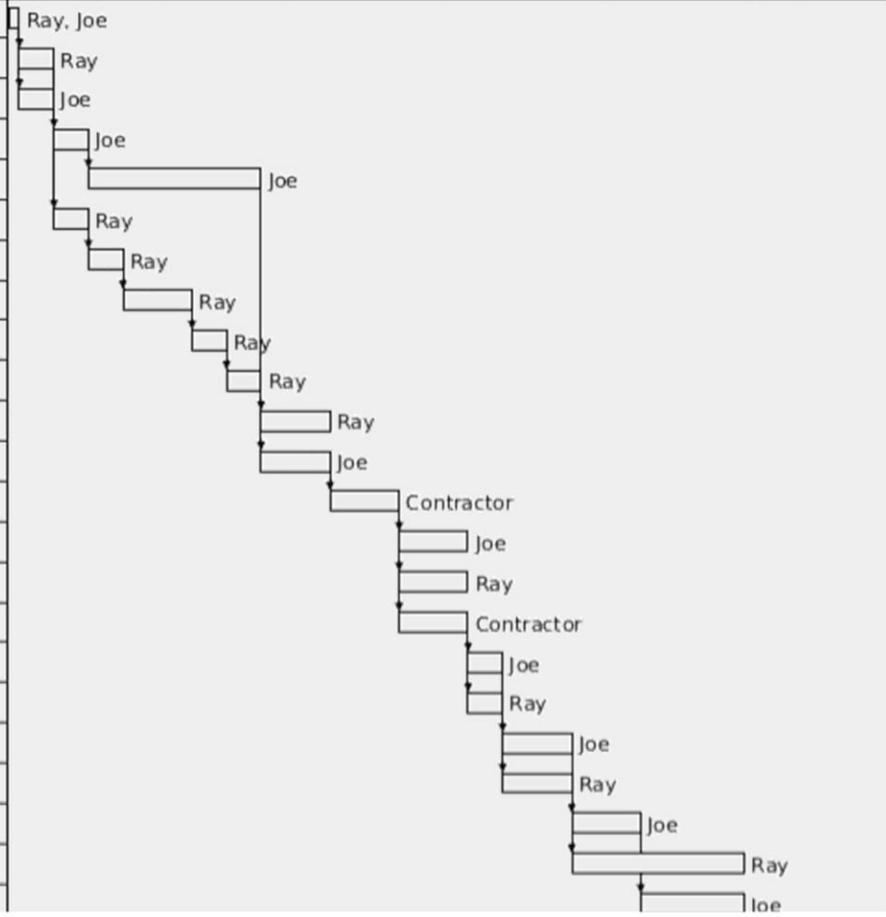
Reviewer

- Asks: “What if recruitment is slower? What if a key tool fails?”
- Looks for: 1–2 realistic risks, brief mitigation strategies

Reality

- Problems always appear.
- Mentioning them calmly and briefly increases trust; it does not scare reviewers.
- Dividing the project into steps or work packages, and Gantt-like plans: good for reviewers, and sometimes for you

Name	Work	2014, H1					
		Jan 2014	Feb 2014	Mar 2014	Apr 2014	May 2014	Jun 2014
Standards building	5d	Ray, Joe					
Ray corpus generation	5d	Ray					
Joe corpus generation	5d	Joe					
NNexus linking	5d	Joe					
Platform enhancements	25d	Joe					
Preprocessing improvements	5d	Ray					
Coprocessing - Infty format	5d	Ray					
Coprocessing - Clustering	10d	Ray					
Postprocessing - lexicographic methods	5d	Ray					
Postprocessing - symbol frequency methods	5d	Ray					
Ray Copyediting platform	10d	Ray					
Joe Copyediting platform	10d	Joe					
Contractor Copyediting platform	10d	Contractor					
Joe Content Assembly and Import (beta)	10d	Joe					
Ray Content Assembly and import (beta)	10d	Ray					
Contractor Planetary interaction	10d	Contractor					
Joe contractor code review	5d	Joe					
Ray user docs	5d	Ray					
Joe user trials	10d	Joe					
Ray user trials	10d	Ray					
wiki export	10d	Joe					
proof of concept books	25d	Ray					
proof of concept books	15d	Joe					



Budget

Candidate

- Asks for too little (“We’ll do all for free”)
- Or inflates costs without explanation

Reviewer

- Too cheap → not realistic; too expensive → wasteful
- Wants: each cost linked to a specific task (personnel time, consumables, etc.)

Reality

- Under-budgeting often means the project quietly dies.
- Realistic budgets are more credible than heroic underfunding.

Impact

Candidate

- “This will revolutionize clinical practice worldwide.”
- Overclaims without a pathway (from study results to long-term impact)

Reviewer

- “Who will use the results?”
- “Is there a realistic path from findings to practice?”

Reality

- Most projects contribute incremental pieces.
- It’s enough to be honest: “This will clarify X, and if positive, next steps would be Y and Z.”

Fit to Call

Candidate

- Writes the proposal they want, then vaguely adapts it to any call

Reviewer

- Has a score sheet in front of them and asks: "Where do I see evidence for criterion X?"

Reality

- You don't need to have the absolute best idea.
- You must be clearly good on each scored item – even the "minor" ones.
- A subheading for each item helps reviewers.

Writing for a Tired Reviewer

Candidate

- Tries to sound very sophisticated
- Uses long sentences and jargon

Reviewer

- Prefers clarity over elegance.
 - Clear headings and short paragraphs
 - Repetition of the central message, clarifying tables and figures
- If they have to re-read → they lower the score

Reality

- “Boring but clear” beats “brilliant but confusing”.

Common Pitfalls & How to Avoid Them

Idea too vague → **sharpen your question**

Undetailed methods → **write concrete steps**

Over-ambitious → **shrink to make it doable**

No fit to call → **rewrite using their criteria**

Overclaiming impact → **be realistic**

Integrating candidate, reviewer and reality

Good proposals:

Start from the
candidate's enthusiasm

Are written for the
reviewer's brain
(clarity, criteria, risk
perception)

Are constrained by
reality checks

A checklist



Is my question SMART?



Do my methods really answer that question?



Is the project doable with my time and resources?



Does the budget honestly reflect what I need?



Does my proposal mirror the call criteria?



Can a reviewer understand the main idea in 1–2 minutes?

Reflections...



- Which details in the first proposal give you confidence that it could work?
- What are the biggest concerns in the second proposal?
- What things will you improve in your next proposals?
- What is the biggest mistake you've personally made (or seen) in a proposal?